Association of mental health outcomes and lower patient satisfaction among adults with alopecia: A cross-sectional population-based study

Anne B. Kim, BS,[a] Brian T. Cheng, MD,[b] and Shahzeb Hassan, MD[b]
Chicago, Illinois

Background: Previous studies have found the increasing use of patient satisfaction scores by patients and insurance payers. Less is known about how patient mental health affects health care satisfaction.

Objective: To examine the association between baseline mental health and health care satisfaction among adults with alopecia.

Methods: We examined 543 adults with alopecia in the 2004-2016 Medical Expenditure Panel Survey. Mental health burden was assessed by the 6-item Kessler Psychological Distress Scale (K6) and 2-item Patient Health Questionnaire (PHQ2). Patient satisfaction was determined using the Consumer Assessment of Healthcare Providers and Systems survey.

Results: Adults with versus without alopecia had higher rates of positive PHQ2 (adjusted odds ratio [95% CI], 1.37 [1.05-1.78]); positive K6 (1.57 [1.02-2.41]), and comorbid anxiety (1.85 [1.30-2.63]) and depression (1.68 [1.19-2.39]). Positive PHQ2 (2.15 [1.13, 4.11]) and positive K6 (6.04 [2.60, 14.05]) were associated with low patient satisfaction. Whereas, there were no differences in the rates of low patient satisfaction associated with comorbid anxiety (0.74 [0.33-1.67]) and depression (1.42 [0.72-2.78]).

Limitations: Data are unavailable on alopecia areata phenotypes and treatment.

Conclusions: Adults with alopecia and greater mental health symptoms report lower patient satisfaction. Clinicians may wish to adapt their communication style to support these patients and improve overall health care satisfaction. (JAAD Int 2022;8:82-8.)

Key words: alopecia areata; hair loss; patient satisfaction; mental health.

INTRODUCTION

Patient satisfaction scores are increasingly used by patients, administrators, and insurance to evaluate clinician performance.[1,2] Dermatologists generally have high patient satisfaction scores, and previous studies found that physician characteristics such as years of experience are associated with higher patient satisfaction with dermatologists.[3,4] However, it is not well-understood why some patients give low satisfaction scores to dermatology clinicians whom many other patients rate highly. Overall, data are limited regarding the association of patient characteristics, such as baseline psychological status, with patient satisfaction. Patients with alopecia areata are at higher risk of depression and anxiety, making these patients a particularly important group for research.[5,6] These findings are relevant for clinical care because higher patient satisfaction is associated with improved patient outcomes.[7] Understanding the potential association between mental health

From Rush University Medical College, Chicago,[a] and the Department of Dermatology, Northwestern University Feinberg School of Medicine, Chicago, Illinois.[b]
Funding sources: None.
IRB approval status: Not human subjects research.
Accepted for publication May 26, 2022.
Correspondence to: Shahzeb Hassan, MD, Department of Dermatology, Northwestern University Feinberg School of Medicine, 676 N. St. Clair Street, Chicago, IL 60611. E-mail: shahzeb.hassan@northwestern.edu.
2666-3287

https://doi.org/10.1016/j.jdin.2022.05.011

outcomes and patient satisfaction empowers clinicians to adapt patient interactions and address psychological health to improve health care satisfaction. As such, the objective of the present study was to characterize mental health outcomes among adults with alopecia and examine the association of patient satisfaction with mental health symptoms and diagnoses.

CAPSULE SUMMARY

- Patients with alopecia and comorbid depressive symptoms and/or psychological distress reported lower patient satisfaction, compared with alopecia patients without mental health symptoms.
- Patients with alopecia and mental health symptoms may benefit from individualized communication strategies aimed at supporting the patient.

METHODS

This was a cross-sectional analysis of adults (≥18 years) enrolled in the 2004-2016 Medical Expenditure Panel Survey (MEPS), annual surveys of health functioning and status conducted by the Agency for Health Research and Quality (AHRQ) of the US noninstitutionalized population. The MEPS includes data on sociodemographic characteristics, health status, and patient satisfaction. The AHRQ provided complex survey weights, strata, and clustering to generate representative nationwide estimates of health status/function. Survey weights were constructed to adjust for nonresponse and adjusted by iterative proportional fitting to population estimates for the corresponding year using age, sex, race and ethnicity, geographic region, and metropolitan area status.

The study cohort included all adults (≥18 years) with a current diagnosis of alopecia areata and related hair conditions. Respondents were asked to list all their current clinical diagnoses. Diagnoses were transcribed verbatim and converted into *International Classification of Diseases, Clinical Modification* codes by professional coders. Alopecia diagnosis was identified by *International Classification of Diseases, Clinical Modification* codes and compared with controls without a diagnosis of alopecia.

Patient satisfaction

The primary study outcome was patient satisfaction. MEPS evaluated satisfaction using the validated Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey (range, 4-16).[8] The specific questions are reproduced in Supplementary Table I (available via Mendeley at https://doi.org/10.17632/59xns3ckdy.1). Patient satisfaction was stratified into low satisfaction (CAHPS score ≤9), moderate satisfaction (CAHPS score 10-15), and high satisfaction (CAHPS score 16), consistent with stratification by previous analyses.[9]

Psychological state and covariates

Psychological status was measured using the 6-item Kessler Psychological Distress Scale (K6) and 2-item Patient Health Questionnaire (PHQ2). The K6 contains 6 items that ask about feelings of nervousness, hopelessness, restlessness, depression, apathy, and worthlessness over the last 30 days (range, 0-24). K6 scores were stratified into no to mild (0-12) and clinically significant psychological distress (≥13). This threshold was selected because a K6 score ≥13 has been associated with clinically significant psychological distress.[10] PHQ2 screens for depressive symptoms by the frequency of depressed mood and anhedonia over the most recent 2 week period (range, 0-6). Previous research found that PHQ2 ≥2 diagnosed major depression with 86% sensitivity and 78% specificity, and this cut-off was considered a positive screen for depression in this study.[11]

Statistical analysis

Prevalence and 95% CI of alopecia were calculated, stratified by sex, age, income, race and ethnicity, insurance payer, and education. Pearson $\chi 2$ tests with Rao-Scott adjustment were used to assess differences. Logistic regression models were constructed to evaluate the association of alopecia diagnosis with PHQ2, K6, depression, and anxiety. Additionally, Cochrane-Armitage tests were used to examine the change in the rates of mental health outcomes among adults with alopecia over the study period (2004-2007/2008-2012/2013-2016).

Median and IQR of CAHPS score were calculated, stratifying by mental health measure: PHQ2, K6, depression, and anxiety. Linear regression models were constructed to examine the association between mental health outcomes (independent variable) and CAHPS score (dependent variable) among adults with alopecia. Least-squares means were calculated; adjusted β with 95% CI were reported. We also used multivariable logistic regression models to determine the impact of positive K6 and PHQ2 screen and comorbid depression and anxiety on rates of low patient satisfaction (CAHPS score

Abbreviations used:

AHRQ:	Agency for Health Research and Quality
CAHPS:	Consumer Assessment of Healthcare Providers and Systems
LS:	lower satisfaction
MEPS:	Medical Expenditure Panel Survey
OR:	odds ratios
PHQ2:	Patient Health Questionnaire
STROBE:	Strengthening the Reporting of Observational Studies in Epidemiology

≤9). Adjusted odds ratios (OR) and 95% CI were reported.

All regression models were adjusted for sociodemographics and functional and health status, as recommended by the AHRQ to isolate the effect of patient-provider interaction.[12] Covariates included sociodemographic characteristics (sex [male/female], age [continuous], race and ethnicity [White/Black/Hispanic/other or multiple], education attainment [less than high school//high school degree], income as a percentage of federal poverty level, and insurance payer [private/public/none]), and multimorbidity. Multimorbidity burden was assessed by the Charlson Comorbidity Index, a comorbidity scoring system calibrated to estimate 1-year mortality.[13,14]

Statistical analyses were conducted in SAS v9.4 (SAS Institute). A 2-sided P value <.05 was considered statistically significant. The Northwestern University Institutional Review Board determined that this study did not constitute human subjects research because all data were deidentified and publicly available from the AHRQ. This study complies with all Strengthening the Reporting of Observational Studies in Epidemiology recommendations.[15]

RESULTS

Population characteristics

Overall, there were 178,161 US adults ≥18 years who were surveyed by the MEPS and completed the CAHPS survey, including 543 (prevalence, 0.3%) adults with alopecia. Alopecia was associated with younger age, higher household income, private insurance coverage, and having a high school degree (Rao-Scott χ^2, $P \leq .01$ for all) (Table I).

Alopecia and mental health outcomes

Compared to those without alopecia, adults with alopecia had higher rates of positive PHQ2 screening (adjusted OR [95% CI], 1.37 [1.05-1.78]; P = .02), positive K6 screening (1.57 [1.02-2.41]; P = .04), and comorbid anxiety (1.85 [1.30-2.63]; P = .0007) and depression (1.68 [1.19-2.39]; P = .004) in logistic regression models adjusted for age, sex, race and ethnicity, education, income, insurance coverage, and multimorbidity.

Patient Health Questionnaire-2 depressive symptoms

Overall, 75.5% of adults with alopecia had a negative PHQ2 screen, and 24.5% had a positive PHQ2 screen for depressive symptoms. The median [IQR] CAHPS was 14.5 [12.0, 15.4] and 13.2 [11.2, 15.2] for those with negative and positive PHQ2 screening, respectively.

Compared to those with a negative PHQ2 screening, adults with alopecia and positive PHQ2 had lower satisfaction (LS-means, 13.52 vs 14.29; adjusted β [95% CI], −0.77 [−1.17, −0.37]; P = .0002). Moreover, positive PHQ2 screening was associated with higher rates of low patient satisfaction (CAHPS ≤9) (proportion, 10.7% vs 4.9%; aOR [95% CI], 2.15 [1.13, 4.11]; P = .02) (Table II).

Kessler-6 psychological distress

Among adults with alopecia, 93.5% had no to mild and 6.5% had clinically significant psychological distress. The median [IQR] CAHPS was 14.3 [11.8, 15.4] for those with no to mild distress and 12.6 [10.7, 14.9] for those with clinically significant distress.

Compared with no to mild psychological distress, clinically significant psychological distress was associated with decreased patient satisfaction (LS-means, 12.85 vs 14.23; adjusted β [95% CI], −1.38 [−2.14, −0.63]; P = .0005) among adults with alopecia after adjustment for sociodemographics and multimorbidity. Further, clinically significant psychological distress was associated with 6-fold higher odds of low patient satisfaction (18.7% vs 5.8%; aOR [95% CI], 6.04 [2.60, 14.05]; P < .0001) (Table II).

Comorbid depression and anxiety

Of 543 adults with alopecia, 105 (17.9%) had comorbid depression and 84 (17.3%) had anxiety. There was no association between comorbid depression and patient satisfaction scores (LS-means, 13.85 vs 14.06; adjusted β [95% CI], −0.21 [−0.69, 0.28]; P = .40). Anxiety was associated with lower patient satisfaction (13.54 vs 14.06; −0.53 [−1.02, −0.03]; P = .04).

There were no differences in the rates of low patient satisfaction associated with comorbid anxiety (0.74 [0.33-1.67]; P = .46) and depression (1.42 [0.72-2.78]; P = .31).

Table I. Sociodemographic characteristics of us adults with and without alopecia (n = 178,161)*

	Alopecia Diagnosis				
	N = 177,618		Yes (n = 543)		
Characteristic	Raw frequency	Weighted prevalence [95% CI]	Raw frequency	Weighted prevalence [95% CI]	Rao-Scott P value
Sex					.42
Male	70,390	42.5 [42.2-42.8]	198	40.0 [34.1-45.9]	
Female	107,228	57.5 [57.2-57.8]	345	60.0 [54.1-65.9]	
Age (y)					**.01**
18-39	58,497	32.2 [31.6-32.9]	208	39.4 [32.6-46.2]	
40-59	66,062	36.7 [36.2-37.2]	217	37.1 [31.0-43.1]	
≥60	53,059	31.1 [30.3-31.8]	118	23.5 [19.1-28.0]	
Income					**.0001**
Poor, near poor, low	64,786	25.9 [25.2-26.6]	127	16.9 [13.1-20.7]	
Middle income	51,441	29.1 [28.6-29.6]	152	26.9 [21.7-32.1]	
High income	61,391	45.0 [44.1-45.9]	264	56.1 [49.7-62.6]	
Race/ethnicity					.19
White	95,850	72.4 [71.2-73.6]	325	76.2 [71.9-80.4]	
Black	31,806	10.5 [9.7-11.3]	98	10.5 [7.7-13.3]	
Multiracial/other	14,627	6.6 [5.9-7.3]	43	5.2 [3.1-7.4]	
Hispanic	35,335	10.5 [9.7-11.4]	77	8.1 [5.7-10.5]	
Insurance coverage					**<.0001**
Private	114,488	73.6 [72.9-74.4]	430	85.0 [81.2-88.9]	
Public	45,142	19.0 [18.4-19.7]	92	12.7 [9.0-16.5]	
None	17,988	7.3 [7.0-7.6]	21	2.2 [0.9-3.5]	
Education					**<.0001**
Less than HS	35,607	13.6 [13.1-14.0]	57	6.3 [4.3-8.3]	
HS degree	140,815	86.4 [86.0-86.9]	486	93.7 [91.7-95.7]	

HS, High school.
*Bold values indicate statistically significant P values. Rao-Scott χ^2 tests were used to assess sociodemographic differences among adults with versus without alopecia.

DISCUSSION

Overall, this study found that alopecia is associated with increased mental health symptoms, and psychological distress and depressive symptoms were associated with lower overall patient satisfaction among adults with alopecia. These findings confirm and build on previous studies that found increased mental health burden associated with alopecia areata and highlight the particular relevance of mental health and patient satisfaction for these patients.[5,6] Specifically, adults with positive PHQ2 screening for depressive symptoms had 2.2-fold increased odds and positive K6 had 6-fold higher odds of low patient satisfaction, whereas neither comorbid depression nor anxiety was associated with low patient satisfaction. These findings suggest that the underdiagnosis of mental health symptoms among adults with alopecia may contribute to low patient satisfaction, and/or poor satisfaction with health care may predispose to mental health symptoms. Clinicians may wish to consider screening alopecia patients for mental health symptoms to identify those at particular risk of low patient satisfaction.

We found that increased mental health burden was associated with lower patient satisfaction among adults with alopecia, regardless of sociodemographic characteristics and comorbidities. These results are consistent with previous studies that found that comorbid depression and anxiety are associated with lower patient satisfaction in elderly adults.[16-18] There are multiple explanations for this association. Psychological state may influence how patients perceive clinician communication, regardless of the quality of clinical care. Increased baseline psychological distress and depression may predispose to suboptimal interactions with providers. Additionally, low health care satisfaction in the setting of a chronic condition may worsen mental health symptoms. There may be a cyclical relationship such that comorbid mental health symptoms worsen patient satisfaction, and low patient satisfaction contributes to the patient's mental health burden. The cross-sectional design of this study precluded any

Table II. Mental health, sociodemographic, and clinical associations of low patient satisfaction among adults with alopecia (n = 543)*

	Psychological distress		Depressive symptoms		Anxiety		Depression	
Characteristic	Adjusted OR [95% CI]	*P* value	Adjusted OR [95% CI]	*P* value	Adjusted OR [95% CI]	*P* value	Adjusted OR [95% CI]	*P* value
Mental health outcome								
Negative screen/no	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-
Positive screen/yes	6.04 [2.60-14.05]	**<.0001**	2.15 [1.13-4.11]	**.02**	0.74 [0.33-1.67]	.46	1.42 [0.72-2.78]	.31
Sex								
Male	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-
Female	2.80 [1.64-4.80]	**.0003**	2.98 [1.87-4.73]	**<.0001**	2.59 [1.59-4.24]	**.0002**	2.52 [1.52-4.17]	**.0005**
Age (y)	0.97 [0.95-0.99]	**.003**	0.97 [0.96-0.99]	**.007**	**0.98** [0.96-0.99]	**.004**	0.97 [0.96-0.99]	**.003**
Education								
No HS diploma	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-
HS diploma	1.87 [0.76-4.59]	.17	2.40 [0.98-5.87]	.05	2.43 [0.97-6.07]	.06	2.23 [0.92-5.41]	.08
Income								
Poor, near poor, low income	0.69 [0.36-1.35]	.28	0.86 [0.47-1.57]	.61	0.92 [0.51-1.66]	.78	0.85 [0.47-1.53]	.59
Middle income	0.79 [0.38-1.61]	.50	0.74 [0.34-1.61]	.44	0.83 [0.42-1.67]	.60	0.82 [0.40-1.68]	.58
High income	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-
Race/ethnicity								
White	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-
Black	0.27 [0.12-0.61]	**.002**	0.30 [0.14-0.67]	**.004**	0.28 [0.12-0.63]	**.003**	0.28 [0.13-0.63]	**.003**
Multiracial/other	0.40 [0.23-0.72]	**.003**	0.51 [0.29-0.90]	**.02**	0.50 [0.27-0.94]	**.03**	0.53 [0.28-1.01]	.05
Hispanic	0.43 [0.17-1.09]	.07	0.49 [0.18-1.37]	.17	0.45 [0.15-1.36]	.15	0.46 [0.16-1.38]	.16
Insurance coverage								
Private	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-	1.00 [ref]	-
Public	1.68 [0.85-3.32]	.13	1.85 [0.95-3.59]	.07	2.14 [1.07-4.26]	**.03**	1.95 [0.95-3.99]	.07
None	1.42 [0.33-6.11]	.64	1.83 [0.46-7.27]	.39	2.04 [0.46-9.01]	.34	2.05 [0.51-8.27]	.31
Charlson Comorbidity Index	0.69 [0.44-1.09]	.11	0.81 [0.54-1.23]	.32	0.82 [0.56-1.21]	.31	0.81 [0.55-1.20]	.29

HS, High school.

*Bold values indicate statistically significant *P* values. Multivariable logistic regression models were constructed to examine associations with low patient satisfaction (dependent variable) among adults with alopecia. Model covariates included sociodemographic characteristics and Charlson Comorbidity Index scores.

examination of causation; longitudinal studies are needed to assess the directionality of the association.

Interestingly, positive screening on PHQ2 for depressive symptoms or K6 for psychological distress were associated with lower patient satisfaction, yet comorbid depression and anxiety were not associated with differences in patient satisfaction. Together, it may be that subclinical, undiagnosed mental health symptoms predispose to low patient satisfaction. Moreover, dissatisfaction with health care experiences may also lead to mental health symptoms. The association between alopecia and increased mental health burden suggests a need for clinicians to be vigilant in screening for and managing mental health symptoms. Previous studies have shown the benefits of mindfulness and cognitive behavior therapy among patients with alopecia.[19,20] As such, this study builds on previous research that multidisciplinary, team-based care to ensure comprehensive management of patient needs may also improve patient satisfaction among adults with alopecia.[21,22]

Our findings have important clinical implications for care of patients with alopecia. Improving the patient experience may improve clinical outcomes because highly satisfied patients are more likely to continue with the same provider, share information with their physician, and adhere to treatment plans.[7] Moreover, clinicians should recognize the effect of mental health on satisfaction and adapt their communication accordingly. Depressed or anxious patients with alopecia may benefit from a more supportive communication style and shared decision-making in treatment decisions.[23]

Since 2012, the Center for Medicare and Medicaid Services introduced CAHPS questions as a metric in the calculation of reimbursement.[2,24] Given the increased mental health burden of alopecia, our study provides data suggesting that the use of CAHPS in the calculation of reimbursement for alopecia is

problematic. In particular, comparing clinician performance based on patient satisfaction scores may asymmetrically penalize clinicians who care for alopecia patients with comorbid mental health symptoms. Additional research is needed to adjust satisfaction scores for the patient psychological baseline state.

The strengths of this study include the complex survey design that allowed for representative estimates of the US population and data collection over a 13-year period. However, some limitations merit mention. First, data were unavailable on patterns of hair loss and treatment regimens. Also, our data were limited to US adults, and the results cannot be generalized to international patients. A cross-sectional study of elderly adults in the Netherlands found that late-life depression was associated with lower health care satisfaction.[16] Similarly, psychiatric symptom improvement was associated with higher levels of satisfaction among involuntary inpatients across 22 hospitals in England.[25] However, neither study specifically examined satisfaction among patients with alopecia areata. Future studies in other countries are warranted to validate these findings among patients with alopecia on an international scale. These results are mostly generalizable to dermatologists because most patients with alopecia areata have their disease managed by a dermatologist. Last, the cross-sectional study design precluded any conclusions about causality or directionality.

In conclusion, adults with alopecia and psychological distress or depressive symptoms are more likely to report low patient satisfaction compared with adults with alopecia without mental health symptoms. Lower patient satisfaction among those with positive mental health screening and not comorbid psychiatric disorders suggests that the underdiagnosis and undermanagement of mental health symptoms may contribute to lower patient satisfaction. Clinicians should recognize that baseline mental health symptoms may affect patient satisfaction, and patients may benefit from tailored communication. Further research is necessary to determine the optimal strategies to improve satisfaction in adults with alopecia and mental health symptoms.

Conflicts of interest

None disclosed.

REFERENCES

1. Hanauer DA, Zheng K, Singer DC, Gebremariam A, Davis MM. Public awareness, perception, and use of online physician rating sites. *JAMA*. 2014;311(7):734-735.
2. Medicare Program: Hospital Outpatient Prospective Payment and Ambulatory Surgical Center Payment Systems and Quality Reporting Programs; Organ Procurement Organization Reporting and Communication; Transplant Outcome Measures and Documentation Requirements; Electronic Health Record (EHR) Incentive Programs; Payment to Nonexcepted Off-Campus Provider-Based Department of a Hospital; Hospital Value-Based Purchasing (VBP) Program; Establishment of Payment Rates Under the Medicare Physician Fee Schedule for Nonexcepted Items and Services Furnished by an Off-Campus Provider-Based Department of a Hospital. Final rule with comment period and interim final rule with comment period. *Fed Regist*. 2016;81(219):79562-79892.
3. Richard MA, Joly P, Roy Geffroy B, Taïeb C. Public perception of dermatologists in France: results from a population-based national survey. *J Eur Acad Dermatol Venereol*. 2019;33(8):1610-1615.
4. Trager MH, Queen D, Fan W, Samie FH. Patient satisfaction of general dermatologists: a quantitative and qualitative analysis of 38,008 online reviews by gender and years of experience. *JID Innov*. 2022;2(2):100089.
5. Okhovat JP, Marks DH, Manatis-Lornell A, Hagigeorges D, Locascio JJ, Senna MM. Association between alopecia areata, anxiety, and depression: a systematic review and meta-analysis. *J Am Acad Dermatol*. Published online June 1, 2019. https://doi.org/10.1016/j.jaad.2019.05.086
6. Toussi A, Barton VR, Le ST, Agbai ON, Kiuru M. Psychosocial and psychiatric comorbidities and health-related quality of life in alopecia areata: a systematic review. *J Am Acad Dermatol*. 2021;85(1):162-175.
7. Ware JE, Snyder MK, Wright WR, Davies AR. Defining and measuring patient satisfaction with medical care. *Eval Program Plann*. 1983;6(3):247-263.
8. Lee Hargraves J, Hays RD, Cleary PD. Psychometric properties of the consumer assessment of health plans study (CAHPS) 2.0 adult core survey. *Health Serv Res*. 2003;38(6p1):1509-1528.
9. Okunrintemi V, Spatz ES, Di Capua P, et al. Patient-provider communication and health outcomes among individuals with atherosclerotic cardiovascular disease in the United States: medical expenditure panel survey 2010 to 2013. *Circ Cardiovasc Qual Outcomes*. 2017;10(4).
10. Prochaska JJ, Sung HY, Max W, Shi Y, Ong M. Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and utilization. *Int J Methods Psychiatr Res*. 2012;21(2):88-97.
11. Arroll B, Goodyear-Smith F, Crengle S, et al. Validation of PHQ-2 and PHQ-9 to screen for major depression in the primary care population. *Ann Fam Med*. 2010;8(4):348-353.
12. Instructions for analyzing data from CAHPS® Surveys: using the CAHPS Analysis Program Version 4.1, 2017. Accessed October 9, 2020. https://www.ahrq.gov/sites/default/files/wysiwyg/cahps/surveys-guidance/helpful-resources/analysis/2015-instructions-for-analyzing-data.pdf
13. Charlson M, Szatrowski TP, Peterson J, Gold J. Validation of a combined comorbidity index. *J Clin Epidemiol*. 1994;47(11):1245-1251.
14. D'Hoore W, Bouckaert A, Tilquin C. Practical considerations on the use of the Charlson Comorbidity Index with administrative data bases. *J Clin Epidemiol*. 1996;49(12):1429-1433.
15. von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Lancet*. 2007;370(9596):1453-1457.
16. Clignet F, Houtjes W, van Straten A, Cuijpers P, van Meijel B. Unmet care needs, care provision and patient satisfaction in

patients with a late life depression: a cross-sectional study. *Aging Ment Health*. 2019;23(4):491-497.

17. Nelson KL, Purtle J. Perceptions of patient-provider communication and receipt of mental health treatment among older adults with depressive symptoms. *Aging Ment Health*. 2019; 23(4):485-490.
18. Kavalnienė R, Deksnyte A, Kasiulevičius V, Šapoka V, Aranauskas R, Aranauskas L. Patient satisfaction with primary healthcare services: are there any links with patients' symptoms of anxiety and depression? *BMC Fam Pract*. 2018;19(1):90.
19. Gallo R, Chiorri C, Gasparini G, Signori A, Burroni A, Parodi A. Can mindfulness-based interventions improve the quality of life of patients with moderate/severe alopecia areata? A prospective pilot study. *J Am Acad Dermatol*. 2017;76(4):757-759.
20. Shenefelt PD. Mindfulness-based cognitive hypnotherapy and skin disorders. *Am J Clin Hypn*. 2018;61:34-44.
21. Morad Y, Sutherland J, DaSilva L, et al. Ocular Genetics Program: multidisciplinary care of patients with ocular genetic eye disease. *Can J Ophthalmol*. 2007;42(5):734-738.
22. Will KK, Johnson ML, Lamb G. Team-based care and patient satisfaction in the hospital setting: a systematic review. *J Patient Cent Res Rev*. 2019;6(2):158-171.
23. Stewart MA. Effective physician-patient communication and health outcomes: a review. *CMAJ*. 1995;152(9):1423-1433.
24. *Hospital Consumer Assessment of Healthcare Providers and Systems. HCAHPS fact sheet*. October 2019.
25. Katsakou C, Bowers L, Amos T, et al. Coercion and treatment satisfaction among involuntary patients. *Psychiatr Serv*. 2010; 61(3):286-292.